

# **Entertainment, Commerce, and Production**

## **Position Paper for NIH/NSF Visualization Workshop**

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### ***Challenge 1: Labor – Entertainment versus Science***

Prior to 1990 Scientific Visualization could compete on an almost equal footing with the entertainment industry for talented staff and could pay them almost as well as that industry. Today that is no longer the case. The Visual Effects, Animation, and Gaming industries have exploded and currently pay top dollar for talented staff with computer graphics training. This has placed the scientific visualization community in a rather unusual situation: while far more software and hardware is available today for computer graphics the visualization community's ability to take advantage of this new technology has actually decreased due to labor drain into these more financially lucrative fields.

### ***Challenge 2: Commerce – Maya versus OpenDX***

Applications software for Scientific Visualization has not developed the same rich feature set and robustness as its commercial entertainment industry counterparts. Maya, 3D Studio Max, and Adobe Photoshop are examples of software packages that have extremely large and versatile feature sets as well as being highly reliable. Similar packages within the field of Scientific Visualization are rare and difficult to find. Scientific visualization software can often be accurately characterized as graduate student research projects providing specific but very limited features. It is true that powerful visualization packages do exist but they do not provide the rich feature set, robustness, quality and effective user interfaces as their commercial counterparts. Visualization scientists can and do utilize these entertainment oriented products but since the primary focus of these packages is a different arena features needed for visualization are often sorely lacking and difficult to implement. It seems that visualization scientists and research centers could do well to look for improved ways to partner with the developers of these products.

### ***Challenge 3: Production versus Research***

The NSF funds visualization research and not visualization production. This makes it quite difficult for scientists to utilize the best visualization practices to explain their work. While funding is provided on a regular basis to develop new visualization techniques and systems it is altogether more difficult to acquire funding to apply visualization tools to assist a scientist in creating explanatory visualizations. Much scientific visualization

production work is done as a part of an ongoing visualization research project to develop a new technique. This limits the amount of visualization production support provided to scientists since when the research project ends often the visualization researchers move on to other things. This has been a significant mechanism by which scientific visualizations for academic scientists have been created in the past. The lack of direct funding for visualization production for scientists makes it difficult to efficiently utilize the effectiveness of visualization as a means for scientific exploration.